

June 24, 1999; the proposed drawing correction filed April 3, 2000 was not approved by the Examiner since the indicated reference number 2000 was not in the specification, FIG. 10 was not included in the brief description of the drawings, and the shown detail was not identified in the drawing by an element number and not described in the specification; Claim 22 was rejected under 35 U.S.C. 112, 1st para. for not describing a “fault current control device being configured to mechanically stabilize the set of windings in the end winding region;” Claim 26 was rejected under 35 U.S.C. 102(b) as anticipated by Nikitin et al. (US 4,429,244); Claims 13-15 were rejected under 35 U.S.C. 103(a) as obvious over Nikitin et al. and Anderson et al. (US 3,670,192); Claim 17 was rejected under 35 U.S.C. 103(a) as obvious over Nikitin et al. and Anderson et al.; Claim 21 was rejected under 35 U.S.C. 103(a) as obvious over Nikitin et al. and Anderson et al., in further view of Auclair (US 5,429,532); Claim 23 was rejected under 35 U.S.C. 103(a) as obvious over Nikitin et al. and Anderson et al., in further view of Elton et al. '165 (US 5,036,165); and Claims 24 and 25 were rejected under 35 U.S.C. 103(a) as obvious over Nikitin et al. and Anderson et al., in further view of Simmons et al. (US 4,997,995).

Claims 16 and 18-20 were indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. Applicants acknowledge with appreciation the indication of allowable subject matter.

In response to the non-entry of the substitute specification filed on May 30, 2000, Applicant will assume, in the absence of any indication to the contrary, that the erroneously entered “clean copy” filed on June 24, 1999 remains entered. Hence, all references (e.g., footnotes, amendments to the specification) to the specification in this and any further response will refer to the page and line numbers of the “clean copy” filed on June 24, 1999.

If the Examiner does not agree that the erroneously entered “clean copy” filed on June 24, 1999

1999 remains entered, it is respectfully requested that the current response be considered a *bona fide* reply, that the Examiner notify Applicant of the withdrawal of the erroneously entered "clean copy" filed on June 24, 1999, and that the Applicant be provided with a reasonable time period to revise the current response.

In response to the disapproval of the Proposed Drawing Correction filed April 3, 2000, a new Proposed Figure is submitted herewith and the indicated reference number 2000 was added to the specification. However, Applicant respectfully traverses the assertions that the detail shown in the Proposed Drawing Correction filed April 3, 2000 was not described in the specification and that FIG. 10 was not included in the brief description of the drawings. In regard to the description of the detail shown in the drawing, the specification describes, e.g., "a plurality of rods or pipes of small diameter, e.g., 3 mm, combined to a bundle."¹ As the illustration of FIG. 10 is supported by this description and moreover would be obvious to one skilled in the art, it is respectfully submitted that no new matter has been added. In regard to the inclusion of FIG. 10 in the brief description of the drawings, the Amendment filed April 3, 2000 adds FIG. 10 to the brief description of the drawings.² Since Amendments cannot be entered in part, and the rejection of Claims 14 and 15 under 35 U.S.C. 112, 1st para. regarding "elongated members" was not repeated in the Office Action mailed June 12, 2000, Applicant assumes that FIG. 10 has already been added to the brief description of the drawings.

In response to the rejection of Claim 22 under 35 U.S.C. 112, 1st para., it is respectfully submitted that a "fault current control device being configured to mechanically stabilize the set of windings in the end winding region" is described in, e.g., Page 5, line 2-24

¹Specification, page 3, line 16-17.

²Page 1, last line.

of the specification and FIG. 3-9. The rejection of Claim 22 under 35 U.S.C. 112, 1st para. is thus respectfully traversed.

Prior to a discussion of the merits, a brief review of Applicant's invention may be helpful. The present invention is directed to "a device for controlling fault currents in an end winding region of a stator in a rotating electric machine,"³ where "conducting material [is included] in the end winding region, connected to ground."⁴ In such a "high-voltage machine, the electric field in the end winding region is reduced to zero or close to zero, due to the grounded outer semi-conducting layers of the cables constituting the windings."⁵ The "high voltage cables thus enclose the electrical field within the windings."⁶

Turning now to the applied art, Nikitin et al. describes that the background art "requires much insulation. The insulation must be very thick...."⁷ Nikitin et al. describes that it is possible to reduce the thickness of the insulation through "half-windings 7 and 8 [that] are placed in series so that each takes only one-half the phase voltage."⁸ Since "the voltage across the turns of the half-winding 7 with respect to the zero potential point X is in the range of 0 to $U_{1/2}$,"⁹ "the elements ... [of] half-winding 7 ... are separated from one another by a spacer 20 ... and from the wedge 19 by a spacer 21"¹⁰ without further insulation, as illustrated in FIG. 3. However, "the insulation of the half-winding 8 ... *must be additionally insulated*

³Specification, page 1, line 6-7.

⁴Specification, page 2, line 14-15.

⁵Specification, page 2, line 21-23.

⁶Specification, page 1, line 17-18.

⁷US 4,429,244 col. 1, line 50-55.

⁸US 4,429,244 col. 3, line 37-38.

⁹US 4,429,244 col. 3, line 41-43.

¹⁰US 4,429,244 col. 3, line 16-20.

from the zero potential surface. To achieve this end, the elements ... of the half-winding 8 are placed in the insulation sleeves 14. The current carrying layers 24 [of insulation sleeves 14] make it possible to produce a slightly nonuniform electric field which eliminates the possibility of a flow of current from the surfaces of the elements 6 ... to the nearest metal surfaces of the stator”¹¹ (italics added).

Andersson et al. describes “a part of a coil near to any machine part is provided with a conducting layer ... connected to ground through an impedance element.”¹² This impedance element is a “resistor 8 ... chosen with such resistance/voltage characteristic that its resistance at a voltage corresponding to the maximum potential to ground of the winding at normal operation is *several times greater than the impedance formed by the capacitance* between the [conducting surface] layer 9 and the conductor of the coil side ... This means that the *potential of the conducting layer during normal operation deviates only negligibly from the conductor potential*”¹³ (italics added).

In contrast, pending Claim 13 recites “a set of windings having high-voltage cables that enclose an electric field in the set of windings, said set of windings having an end winding region” and “a fault current control device including, an elongated member of an electrically conducting material connected to ground and disposed in the end winding region.” Since Andersson et al. describes that “the potential of the conducting layer during normal operation deviates only negligibly from the conductor potential,” the set of windings as recited in Claim 13 is taught away from by Andersson et al. Since Andersson et al. furthermore describes that the conducting layer is connected to ground through a “resistor 8

¹¹US 4,429,244 col. 3, line 46-56..

¹²US 3,670,192, col. 1, line 64-70.

¹³US 3,670,192, col. 2, line 38-46.

... chosen with such resistance/voltage characteristic that its resistance at a voltage corresponding to the maximum potential to ground of the winding at normal operation is several times greater than the impedance formed by the capacitance between the [conducting surface] layer 9 and the conductor of the coil side,” a fault current control device as recited in Claim 13 is also taught away from by Andersson et al. Since Nikitin et al. describes that “insulation of the half-winding 8 ... must be additionally insulated from the zero potential surface,” a fault current control device as recited in Claim 13 is also taught away from by Nikitin et al. Thus, in light of the fact that both cited references teach away from the invention recited in Claim 13 and furthermore neither suggests nor describes the elements recited in Claim 13 as is necessary to establish a *prima facie* case of obviousness, the rejection of Claim 13 under 35 U.S.C. 103(a) is respectfully traversed.

The rejection of Claims 14-25 under 35 U.S.C. 103(a) is likewise respectfully traversed since Claims 14-25 depend upon Claim 13. It is furthermore respectfully submitted that Auclair, Elton et al.’165, and Simmons et al. all fail to describe or suggest, e.g., “a fault current control device including, an elongated member of an electrically conducting material connected to ground and disposed in the end winding region” as recited in Claim 13, and thus all of the primary and secondary references in combination also fail to establish a *prima facie* case of obviousness for Claim 13.

Pending Claim 26 recites “means for controlling a fault current and for conducting said fault current to ground in an end winding region of said set of windings.” Since Nikitin et al. describes that “insulation of the half-winding 8 ... must be additionally insulated from the zero potential surface” and asserts that this can be accomplished using “insulation sleeves 14” that include “the current carrying layers 24” and “cable-type terminations 23,” components 24 and 23 cannot possibly form “means for ... conducting said fault current to

ground.” Thus, anticipation by Nikitin et al. has not been established and the rejection of Claim 26 under 35 U.S.C. 102(b) is respectfully traversed.

In light of the foregoing comments, it is respectfully submitted that Claims 13-26 are patentably distinguishing over the cited art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore respectfully requested.


Respectfully submitted,

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